



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 68 TO FACILITY OPERATING LICENSE NO. NPF-69

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION, UNIT 2

DOCKET NO. 50-410

1.0 INTRODUCTION

By letter dated August 28, 1995, the Niagara Mohawk Power Corporation (NMPC or the licensee) submitted a request for changes to the Nine Mile Point Nuclear Station, Unit 2, (NMP2) Technical Specifications (TSs). The requested changes would revise Primary Containment Purge System TS Section 3.6.1.7, Limiting Condition for Operation (LCO). The revision extends the amount of time the 12-inch and 14-inch purge system supply and exhaust lines may be used for venting or purging from 90 to 135 hours per 365 days. In addition, expired footnotes were deleted as an editorial change and the associated Bases section was revised.

2.0 BACKGROUND

The containment purge system is designed to purge the primary containment of nitrogen prior to personnel entry, and to inert the primary containment with nitrogen during restart, using 14-inch and 12-inch lines from drywell and suppression chamber, respectively. Purge exhaust is drawn from the drywell and suppression chamber through the standby gas treatment system (SGTS) for filtration and monitored release through the plant stack. A 2-inch bypass line is used in the pressure control mode of purge system operation. The 2-inch bypass line serves to eliminate the need to use the larger purge exhaust lines for primary containment pressure control during normal power operation.

NMP2's current TS LCO 3.6.1.7 includes a restriction on the number of hours per year that the 12-inch and 14-inch containment purge system valves may be opened in OPERATION CONDITION 1, 2, and 3. The time limit is to ensure that the probability of a design basis accident resulting in a potential radiological release, concurrent with purge system operation, is maintained sufficiently low so that such an event is not deemed credible. The restriction is intended to conservatively balance the operational needs of the plant with the requirement to preclude a radiological release through the containment purge system and avoid a potentially damaging pressure transient in the SGTS downstream of the purge system isolation valves.

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3.0 EVALUATION

NMPC is proposing to increase the time restriction that the 12-inch and 14-inch vent and purge valves can be used for venting and purging, revise the associated Bases section, and delete expired footnotes as an editorial change. Specifically, the proposed change would revise: (1) LCO 3.6.1.7a and its corresponding "*" footnote to reflect an increase in the allowable containment purge system operating time from 90 to 135 hours per 365 days; and (2) LCO 3.6.1.7b, Surveillance Requirement 4.6.1.7.2 and their corresponding footnotes, to delete an expired provision relaxing the operability requirements of purge valve 2CPS*AOV106.

NRC Standard Review Plan (SRP) Section 6.2.4 and Branch Technical Position CSB 6-4 contains criteria for containment purge system design and operation. These criteria include a provision to waive an eight inch limit in line size and justification of a larger line size via acceptable dose consequence analysis, provide a 90-hour per year operating limit is imposed during power operation, startup and hot shutdown. Recognizing that the operating limit should be dependent on plant specific parameters, and that the need for purging during normal operations was not always anticipated in early plant designs, the staff later clarified the general criteria for purge system operation and design in Generic Letter (GL) 83-02. The NMP2 12-inch and 14-inch purge system isolation valves listed in TS 3.6.1.7 were qualified for closure post-LOCA, as documented in Appendix J to Supplement 3 of the NMP2 NRC Safety Evaluation Report (NUREG-1047, Supplement 3). Operation of the 12-inch and 14-inch purge lines is limited to necessary activities associated with containment purging and venting consistent with plant and personnel safety. Purge system valves with resilient seal material are subject to augmented testing per TS 4.6.1.7, and are replaced as warranted by testing and operating history. The proposed increase in allowable use of the purge system is based on a plant specific assessment demonstrating that the risk of challenges to the SGTS and a radiological release associated with purge system operation, is maintained acceptably low. The proposed change would continue to ensure consistency with the staff criteria set forth in SRP 6.2.4, Branch Technical Position CSB 6-4 and GL 83-02 and is therefore acceptable.

4.0 STATEMENT OF EMERGENCY CIRCUMSTANCES

LCO 3.6.1.7.a, "Primary Containment Purge System," established a maximum allowable time duration of 90 hours per 365 days for OPERATIONAL CONDITION 1, 2, and 3 during which the 12-inch and 14-inch purge supply and exhaust primary containment isolation valves in the purge system supply and exhaust lines may be open for VENTING and PURGING primary containment. The purge supply and exhaust primary containment isolation valves are: 12-inch valves 2CPS*AOV105, 2CPS*AOV107, 2CPS*AVO109, 2CPS*AOV111; and 14-inch valves 2CPS*AOV104, 2CPS*AOV106, 2CPS*AOV108, 2CPS*AOV110. Operation of these primary containment isolation valves is required during PURGING to allow de-inerting and re-inerting of the primary containment.



A cumulative time of approximately 84.4 hours has been reached for OPERATIONAL CONDITION 1, 2, and 3 during which the above purge supply and exhaust primary containment isolation valves have been opened during the past 365 days. The accumulation of these hours is attributed to the five plant shutdowns during the last 365 days, four of which required personnel entry into the primary containment including the fourth refueling outage. For one of these shutdowns, entry into primary containment was initially planned but subsequently determined to be unnecessary. Since it is Niagara Mohawk's practice not to allow personnel entry into an inerted containment, PURGING (i.e., de-inerting) was necessary to permit drywell entry. The cumulative time also includes operation of these primary containment isolation valves to permit re-inerting of the primary containment after personnel have exited and secured primary containment.

It is industry practice, including at NMP2, during a plant shutdown to perform PURGING (i.e., de-inerting) of the primary containment in OPERATIONAL CONDITION 1, 2, and 3, as permitted by LCO 3.6.6.2, Drywell and Suppression Chamber Oxygen Concentration, to minimize the time before the primary containment can be entered by plant personnel and to allow containment entry while systems are in a hot, pressurized condition to detect system leakage. Likewise, for plant restart, LCO 3.6.6.2 permits delaying of PURGING (i.e., re-inerting) of primary containment until OPERATIONAL CONDITION 1.

For plant restarts, this above practice is necessary to allow inspections within primary containment to detect minor leakage from hot, pressurized systems. These inspections enhance the timely detection and possible repair of minor leakage prior to resumption of normal power operation. Performance of these inspections in OPERATIONAL CONDITION 4 would result in far less meaningful results. In addition, certain types of minor leakage can be corrected without depressurization of the reactor pressure vessel which minimizes thermal cycles on the reactor pressure vessel. NMPC believes that continuation of these practices for the planned outage are in the best interests of maintaining the safe operation of the plant. Therefore, Niagara Mohawk has concluded that it has prudently managed the operation of the purge supply and exhaust isolation valves to minimize the accumulation of hours towards the 90-hour time limit.

NMPC has decided to shutdown NMP2 and de-inert the primary containment to allow personnel entry into primary containment to perform corrective maintenance on recirculation flow control valve position monitoring instrumentation. Primary containment entry is highly desirable during restart of the unit under hot pressurized conditions to evaluate the effectiveness of the corrective maintenance on the monitoring instrumentation. Recent attempts to correct the problem with this instrumentation without drywell entry have been unsuccessful. Currently, the maximum power of NMP2 is limited to approximately 95 percent of rated power due to problems with this instrumentation.

Further, the normal position indication (control room display) for one suppression chamber to drywell vacuum breaker is not available, necessitating



the use of alternate means of periodically verifying vacuum breaker position. The planned outage will also allow repair of the normal position monitoring instrumentation located within primary containment.

The problems with the recirculation flow control valve monitoring instrumentation and the vacuum breaker position monitoring instrumentation occurred after the restart of the unit from the fourth refueling outage. Absent these problems, NMP2 was expected to operate normally through this fuel cycle and would have recovered significant hours against the 90-hour limit by the end of 1995. Therefore, NMPC has concluded that it could not have anticipated or avoided the situation leading up to this request.

NMPC requests that this application for amendment be considered an emergency situation so as to prevent the loss of the ability to perform visual inspections of systems within primary containment during hot, pressurized conditions. Based on the current cumulative time, there is insufficient time remaining below the 90-hour limit to permit entry during restart. Without this proposed change, inspections would have to be performed in cold shutdown and thereby be far less likely to identify minor leakage from systems within the primary containment. Furthermore, the loss of visual inspection capability during hot, pressurized conditions increases the likelihood of thermal cycles on the reactor pressure vessel since certain types of leakage could be corrected in OPERATIONAL CONDITION 1, 2, or 3 without depressurization of the reactor pressure vessel. Therefore, the proposed change enhances nuclear safety by increasing the likelihood of the identification of leakage from systems inside primary containment and by reducing the potential for thermal cycles on the reactor pressure vessel.

Delaying the unit shutdown until sufficient time below the 90-hour limit becomes available to permit such inspections in the primary containment would prevent NMP2 from increasing power output to its licensed power level for an additional 3-1/2 months, thus forcing continued derated operation.

The NRC staff does not believe the NMPC abused the emergency provision of 10 CFR 50.91(a)(5) in this instance. One of the recirculation flow control valves is experiencing problems with its position monitoring instrumentation. The valve is currently "hydraulically" locked in its position. This configuration does not allow for the valve to respond to transients and relies on the other recirculation flow control valve to respond, which may result in large core flow imbalances. As detailed above, it is industry practice to perform purging (i.e. de-inerting) of the primary containment in OPERATIONAL CONDITIONS 1, 2, and 3 to minimize the time before the primary containment can be entered by plant personnel and to allow containment entry while systems are in hot, pressurized condition to detect system leakage. NMPC determined that it was necessary to shutdown to perform corrective maintenance on the recirculation flow control valve which required additional time to perform venting and purging operations. When that decision was made, NMPC immediately contacted the NRC staff and initiated an emergency amendment request. Therefore, in accordance with 10 CFR 50.91(a)(5), the Commission has determined that emergency circumstances exist that warrant prompt action. The



situation, as detailed above, could not have been reasonably avoided and NMPC and the Commission must act quickly. The time remaining does not permit the Commission to publish a Federal Register notice allowing 30 days for prior public comment. The Commission has also determined that the requested amendment, as discussed in Section 6.0, does not involve a significant hazards consideration.

5.0 SUMMARY

Based on its review of NMPC's rationale and the evaluation described above, the NRC staff concurs with NMPC's conclusion that it is necessary to extend the amount of time the 12-inch and 14-inch purge system supply and exhaust lines to allow for corrective maintenance. Therefore, the NRC staff finds that NMPC's proposed TS change to revise the Unit 2 Primary Containment Purge System TS 3.6.1.7 LCO to increase the time restriction from 90 to 135 hours per 365 days, revise the associated Bases section, and delete expired footnotes as an editorial change is acceptable.

6.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has proved standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of new or different kind of accident from an accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The following evaluation by NMPC, with which we agree, demonstrates that the proposed amendment does not involve a significant hazards consideration.

The operation of Nine Mile Point 2, in accordance with the proposed amendment, will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed amendment would revise NMP2 Technical Specification 3.6.1.7, to increase the allowable time of containment purge system operation in OPERATIONAL CONDITIONS 1, 2 and 3 (power operation, startup and hot shutdown), from 90 hours per year to 135 hours per year. The request would also delete expired footnotes for editorial clarity. This proposed change does not affect the consequences of any previously evaluated accident, as it does not affect the progression of any accident sequence in the NMP2 licensing basis. It is, however, necessary to evaluate the proposed change for its impact on the probability of a design basis accident concurrent with purge system operation. Probabilistic Risk Assessment (PRA) was used to determine the incremental increase in probability associated with the proposed change. This increase was found



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to be extremely small, and would maintain an extremely low total probability of a radiological accident concurrent with purge system operation.

Therefore, the proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The operation of Nine Mile Point 2, in accordance with the proposed amendment, will not create the possibility of a new or different kind of accident from any previously evaluated.

The proposed change would increase the allowable time the containment purge system may be used during plant operation. It does not involve any new physical plant changes or new operational configurations. No new failure modes are introduced.

Therefore, this proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

The operation of Nine Mile Point 2, in accordance with the proposed amendment, will not involve a significant reduction in a margin of safety.

The proposed change would not affect the ability to maintain primary containment integrity. Based on a conservative, plant specific evaluation, the proposed change is shown to maintain an acceptably low risk associated with containment purge system operation, consistent with NRC criteria contained in Standard Review Plan Section 6.2.4, Branch Technical Position CSB 6-4, and Generic Letter 83-02. Therefore, this proposed change does not involve a significant reduction in a margin of safety.

The NRC staff's evaluation of this proposed amendment pursuant to 10 CFR 50.91 determined that it involves no significant hazards consideration.

7.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had not comments.

8.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has made a final no significant hazards



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consideration with respect to this amendment. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

9.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: J. Harold

Date: August 31, 1995



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